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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,838	08/22/2003	Uwe Kritz	3691-582	8129
23117	7590	08/26/2005	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			BLACKWELL RUDASIL, GWENDOLYN A	
			ART UNIT	PAPER NUMBER

1775

DATE MAILED: 08/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/645,838

Applicant(s)

KRILTZ ET AL.

Examiner

Gwendolyn Blackwell

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 8/03, 9/03, 2/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claim 28 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/797,561. Although the conflicting claims are not identical, they are not patentably distinct from each other because the structure of copending claim 1 completely encompasses the claimed structure of present claim 28.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

*The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.*

Art Unit: 1775

4. Claims 23 and 31-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23 is indefinite as it is unclear from the claim language where the titanium oxide and silicon nitride should be in relation to the tin oxide and each other. Is the titanium oxide layer above or below the tin oxide layer? Clarification is required.

Claim 28 is indefinite as it is unclear from the claim language where the tin oxide, titanium oxide, and silicon nitride should be located within the coating stack. Clarification is required.

Claim 32 recites the limitation "wherein the layer comprising tin oxide" in line 1. There is insufficient antecedent basis for this limitation in the claim as claim 28 does not disclose the use of a tin oxide layer.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

6. Claims 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent Application Publication no. 2002/0102352, Hartig et al.

Art Unit: 1775

*Applicant's claim 28*

Applicant's claim 28 requires a coated article comprised of a multilayer coating wherein the coating is comprised of a dielectric layer, first and second layers comprising silver spaced apart from one another by at least one metal oxide inclusive layer and another dielectric layer provided over both of the first and second layers comprising silver. In addition, to the exemplified layer structure the coated article should have particular physical properties.

*Regarding claim 28*

Hartig et al disclose the following layer structure, (page 4, Table 1):

TABLE I				
LAYER	SAMPLE A	SAMPLE B	SAMPLE C	SAMPLE D
Zn+	65 Å	66 Å	65 Å	84 Å
ZnO	57 Å	56.7 Å	45 Å	43 Å
Ag	63.7 Å	66.3 Å	74 Å	73 Å
Nb	15.3 Å	15 Å	16.2 Å	17 Å
Zn+	74 Å	73 Å	107 Å	93 Å
Si3N4	135 Å	135 Å	118 Å	118 Å
Zn+	187 Å	206 Å	191 Å	189 Å
Si3N4	139 Å	133 Å	124 Å	122 Å
Zn+	29 Å	31 Å	57 Å	64 Å
ZnO	61 Å	62 Å	62 Å	51 Å

TABLE I-continued				
LAYER	SAMPLE A	SAMPLE B	SAMPLE C	SAMPLE D
Ag	143 Å	140.4 Å	158 Å	141 Å
Nb	15.9 Å	15 Å	16.8 Å	16 Å
Zn+	83 Å	84 Å	105 Å	108 Å
Si3N4	46 Å	24 Å	38 Å	34 Å
TiN	13.3 Å	14.1 Å	15 Å	14 Å
Si3N4	152 Å	176 Å	155 Å	156 Å

wherein before tempering the total visible transmission was 71.4% and post tempering the total visible transmission is 78.7%, (page 5, Table 2), which demonstrates that the coated article

Art Unit: 1775

retained more than 98% of its pre heat treatment visible transmission, meeting the requirements of claim 28.

*Regarding claims 29-30*

The sheet resistance is 2.5, and the  $T_v/R_s$  (78.7/2.5) is 31.4, (page 5, Table 2). When the structure recited in the reference is substantially identical to that of the claims, the claimed properties or function are presumed inherent. *MPEP 2112.01*. Because the prior art exemplifies Applicant's claimed layer structure, the claimed physical properties relating to a  $\Delta E^*$  value are inherently present in the prior art. Absent an evidentiary showing to the contrary, the addition of the claimed physical properties to the claim language fails to provide patentable distinction over the prior art of record, meeting the requirements of claims 29-30.

7. Claims 28-30 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent Application Publication no. 2004/0005467, Neuman et al.

The limitations of claim 28 have been set forth above.

*Regarding claim 28*

Neuman et al disclose the following layer structure, (page 7, Table 5):

<u>LAYER STACK FOR EXAMPLES</u>	
Layer	Thickness
Glass Substrate	about 3 to 3.4 mm
TiO <sub>x</sub>	40 Å
Si <sub>x</sub> N <sub>y</sub>	113 Å
ZnAlO <sub>x</sub>	100 Å
Ag	95 Å
NiCrO <sub>x</sub>	26 Å
SnO <sub>2</sub>	483 Å
Si <sub>x</sub> N <sub>y</sub>	113 Å
ZnAlO <sub>x</sub>	100 Å
Ag	131 Å
NiCrO <sub>x</sub>	26 Å
SnO <sub>2</sub>	100 Å
Si <sub>3</sub> N <sub>4</sub>	226 Å

wherein the visible transmission increased after heat treatment, (see Table 9, page 8), meeting the requirements of claim 28.

*Regarding claims 29-30*

The coated article can have a  $T_v/R_s$  ratio of at least 30 after heat treatment and a  $\Delta E^*$  value of no greater than 8.0, more preferably no greater than 5, even more preferably no greater than 4.0, after heat treatment, (Neuman, page 2, section 0014), meeting the requirements of claims 29-30.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1775

*(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-27 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent Application no. 2002/0064662, Lingle et al, in view of United States Patent Application Publication no. 2004/005467, Neuman et al as applied to claim 28 above further in view of the article entitled "*Thermally durable sputter-deposited tin oxide films and their applications*", Ebisawa et al.

*Applicant's claims 1, 18, and 23*

Applicant's claim 1 requires the following structure:

glass substrate/titanium oxide layer/tin oxide layer/silicon nitride layer/contact layer/Ag layer/  
dielectric metal oxide layer/Ag layer/another dielectric layer

wherein tin oxide is contacting the titanium oxide layer, the silicon nitride layer is contacting the tin oxide layer, the contact layer is contacting the silicon nitride layer, and the Ag layer is contacting the contact layer.



Art Unit: 1775

Applicant's claim 18 requires the following structure:

glass substrate/titanium oxide layer/tin oxide layer/silicon nitride layer/zinc oxide layer/Ag layer/  
metal oxide layer/tin oxide/silicon nitride/zinc oxide/Ag layer/metal oxide dielectric layer/silicon  
nitride

wherein the zinc oxide layer is contacting the silicon nitride layer and the IR reflecting layer is contacting the zinc oxide layer.

Applicant's claim 23 requires the following layer structure:

glass substrate/titanium oxide or silicon nitride layer /tin oxide layer/silicon nitride or titanium  
oxide layer/Ag layer

The limitations of Applicant's claim 28 have been set forth above.

*Regarding claims 1, 18, 22-23, and 31-32*

Lingle et al disclose a heat treatable low-e coated article comprised of a glass substrate with at least one dielectric layer formed on the substrate, a first contact layer, a first IR reflecting layer comprising Ag, a second contact layer, at least one additional dielectric layer, a third contact layer, a second IR reflecting layer, a fourth contact layer, and at least one additional dielectric layer, (page 2, sections 0027-0039). Between the first IR reflecting layer and the substrate a first layer of tin oxide, followed by a layer of silicon nitride, followed by a layer of zinc oxide can be formed, (page 3, sections 0072-0074). A contact layer is formed on the Ag layer, with a layer of zinc oxide formed on the contact layer which further has a dielectric layer formed on the zinc oxide layer, (page 4, sections 0078-0080). Lingle et al does not specifically disclose an additional dielectric layer formed between the tin oxide layer and the substrate.

Neuman et al disclose a heat treatable coated article comprised of a glass substrate having a multilayer coating formed thereon comprised of zinc oxide inclusive contact layers, (page 2, section 0014). It is further disclosed that another dielectric layer such a titanium oxide can be added next to the substrate, (pages 3-4, section 0034). Table 9 demonstrates that the visible transmission is maintained by at least 98% after heat treatment, (page 8, Table 9). Between the first and second Ag layers the following layer structure is exemplified, (page 7, Table 5):

Metal oxide/tin oxide/silicon nitride/zinc oxide inclusive layer.

Ebisawa et al disclose that tin oxide can be deposited with a nitrogen component, (page 307, paragraph 3).

Glaser et al, Neuman et al, and Ebisawa et al disclose analogous inventions related to heat treatable coated articles. It would have been within the skill of one in the art at the time of invention to modify layer structure of Glaser et al with the zinc oxide of Neuman et al in order to protect the IR reflecting layer during heat treatment or other processing.

It would have also been within the skill of one in the art to further modify the Glaser et al coating by inserting a titanium oxide between the substrate and the tin oxide layer in order to increase the neutrality of the glass at high viewing angles such as at 45 and/or 60 degrees, (Neuman, page 4, section 0035), as Glaser et al specifically discloses that "the lower coating, comprises at least two different layers made of dielectric material", (Glaser, column 3, lines 29-33).

Art Unit: 1775

It would have further been within the skill of one in the art at the time of invention to further modify the Glaser/Neuman coated article through the addition of nitrogen to the tin oxide film in order to inhibit the substrate from bending and cracks, (Ebisawa, page 308, paragraph 1).

*Regarding claims 2-3, 10-12, and 24-25*

The coated article can have a  $T_v/R_s$  ratio of at least 30 after heat treatment and a  $\Delta E^*$  value of no greater than 8.0, more preferably no greater than 5, even more preferably no greater than 4.0, after heat treatment, (Neuman, page 2, section 0014). Monolithically, after heat treatment, the coated article has a most preferred sheet resistance of less than or equal to 2.5, (Neuman, Table 3, section 0047), with a visible light transmission of greater than or equal to 75%, (Neuman, Table 4, section 0049).

*Regarding claims 4-5*

Aluminum can be added to the zinc oxide, (Neuman, page 3, section 0031). The coated article is heat treatable, (Neuman, page 2, section 0014). Titanium oxide can be used as the first dielectric layer next to the substrate, (Neuman, pages 3-4, section 0034). Zinc oxide can be used for the contact wherein the zinc oxide can be doped or undoped with aluminum, (Neuman, page 2, section 0014).

*Regarding claims 6-8, 15-17, and 26-27*

The silicon nitride layers can be Si-rich with an x/y ratio from 0.76-1.5 having a refractive index of 2.05 to at least 2.10, (Neuman, page 4, section 0040). The coated article can be an IG window unit or a laminated windshield, (Neuman, page 3, section 0027). Aluminum can be added to the silicon and zinc targets, (page 7, section 0064).

Art Unit: 1775

*Regarding claims 9 and 13- 14*

The first dielectric layer has an example thickness of 100 angstroms and a silicon nitride layer thickness of 170 angstroms, (Lingle, page 5, Table 5). The added titanium oxide layer thickness of Neuman et al has a thickness of 20-60 angstroms, (page 4, section 0035).

*Regarding claims 19-20*

Table 4 demonstrates that a laminated post heat treatment glazing has haze value of less than 0.35 and a  $T_s$  of 35%, (page 6, Table 4). Although it is not specifically towards a laminated windshield, Neuman et al has disclosed that this invention would also be usable with a laminated windshield as set forth. It would be expected that the low haze for the laminated glazing would also be reproducible with a laminated windshield.

*Regarding claim 21*

Nitrogen can be present in the tin oxide film in an amount ranging from 2.7-8.6, (Ebisawa, page 308, Table 1).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gwendolyn Blackwell whose telephone number is (571) 272-1533. The examiner can normally be reached on Monday - Thursday; 5:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1775

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gwendolyn Blackwell  
Examiner  
Art Unit 1775



DEBORAH JONES  
SUPERVISORY PATENT EXAMINER